ABSTRACT

LINE IDENTIFICATION IN ATMOS SOLAR SPECTRA

Two years ago we produced the first Atlas of the Infrared Spectrum of the Sun from Space - Key to Identification of Solar Features, based on the ATMOS experiment which flew on Spacelab-3 from April 29 through May 2, 1985. The result was that for the interval from 620 cm^{-1} to 4800 cm^{-1}, more than 10000 features were identified as molecular features (CO, OH, CH and NH), more than 1700 atomic features were identified and 3750 features were unidentified, Since then, due to inputs from many researchers, recalculations of energy levels and refined analyses of the ATMOS data, occultation by occultation, the number of unidentified features (all presently assumed to be atomic in origin) have been dramatically reduced to about 2600, a drop of more than 30%. The present status of the ongoing investigations will be discussed. In addition, the solar spectrum from 4700 cm^{-1} to 5500 cm^{-1} has been analyzed, based on the Mark IV balloon experiment, and the identification and status of the approximately 800 solar features will be discussed. Finally, a comparison of nearly 1500 observed Fe solar lines will be compared with the recent monumental study of FeI by Nave et al.